

## **REMARKS**

By the present amendment, claims 1, 2, 4, 6 and 9-16 have been canceled without prejudice or disclaimer of the subject matter thereof, independent claim 3 has been amended to clarify features thereof and dependent claims 5, 7 and 8 have been amended.

More particularly independent claim 3 has been amended to recite "...the relative position measurer includes at least two measurement members so disposed so as to sandwich the measurement head therebetween; and wherein while the measurement head measures the three-dimensional shape of the sample, the relative position measurer obtains a weighted average of outputs of the at least two measurement members as to acquire a change in the relative position between the sample and the measurement head, the sample being disposed at a position to be measured by the measurement head." Support for the claim language can be found, for example, in paragraph 6, pages 15, 16 of specification and in FIG. 5A and FIG. 5B. In FIG. 5A, the reference numeral "150" denotes a relative distance sensor 150 as a measurer which measures a distance between the measurement head 100 and the sample 300 (such as a semiconductor wafer). In FIG. 5A, two points on the sample 300 away from the position to be measured by the measurement head 100 are measured by the sensors 150 which sandwich the measurement head 100 therebetween. By providing the two sensors 150 (two measurement members), which sandwich the measurement head 100 therebetween, a weighted average of the outputs of at least two measurement members 150 is obtained, so that the change in the relative position between the measurement head 100 and the sample 300 is obtained. For example, when the sensors 150 are disposed at positions which are point-symmetric about the center of the measurement head 100, when an



average of these measurement results with equal weights is calculated, the relative position between the measurement head 100 and the sample 300 at the position measured by the measurement head 100 can be obtained.

As to rejection of claims 1-3, 5-9, 11-12 and 16 under 35 USC 102(b) as anticipated by Motosugi (5,548,405), and the rejection of claims 4, 10 and 13-15 under 35 USC 103 (a) as being unpatentable over Motosugi, and the rejection of claims 10 and 13-15 under 35 USC 103 (a) as being unpatentable over Motosugi in view of Toyoshima et al (US 2003/0090651 A1), such rejections are traversed insofar as it is applicable to the present claims, and reconsideration and withdrawal of the rejection are respectfully requested.

As to the requirements to support a rejection under 35 U.S.C. 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. § 102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, the reference still may anticipate if the element is “inherent” in its disclosure. To establish inherency, the extrinsic evidence “must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by person of ordinary skill.” Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.



In applying Motosugi to the independent claim 3, the Examiner contends that Motosugi discloses in FIG. 1 and FIGS. 2A-2C, a three dimensional shape apparatus comprising: a measurement head (10, 12, LU, LS) for measuring a three-dimensional shape of a sample (9), a stage (2) holding the sample (9) thereon; and relative position measurer (2, 3, 4, 11, and 13) using at least one of electrostatic capacity, air pressure, and light to measure a relative position between the sample (9) and the measurement head (10, 12, LU, LS). That is, irrespective of the position of the Examiner, Motosugi provides no disclosure or teaching of a relative position measurer including at least two measurement members sandwiching the movement head therebetween, noting that neither the first laser displacement gage 10 nor the second laser displacement gage 12 has at least two measurement members disposed to sandwich the displacement gages 10 or 12, and to obtain a weighted average of outputs of the at least two measurement members, so that the change in the relative position between the measurement head 10 or 12 and the sample 9 can be obtained.

Instead, Motosugi specifically describes that the R stage is movable in the horizontal direction and in the direction of the diameter R of the rotation stage 2. There is a first laser displacement gage 10 provided on the lower surface of the R stage 11 so that the optical axis thereof becomes in parallel with the rotational axis 14 of the rotation stage 2. Motosugi also describes the Z stage that is movable in the Z direction parallel to the rotational axis 14. A second laser displacement gage 12 is provided on a side surface of the Z stage 13 so that the optical axis thereof becomes perpendicular to the rotational axis 14. (See Motosugi, Col. 5, lines 17 – 30). Thus, in Motosugi the first displacement gage 10 moves parallel to the sample 9 and the second gage 12 moves perpendicular to the sample 9. Each displacement



gage measures the center of sample 2. None of the two gages 10 or 12 provides at least two measurement members disposed as to sandwich the gage 10 or gage 12, and to obtain a weighted average of outputs of at least two measurement members, so that the change in the relative position between the gages 10 or 12 and the sample 9 can be obtained.

Accordingly, applicant submits that independent and dependent claims recite features not disclosed by Motosugi, and all claims should be considered allowable thereof.

With respect to the independent and dependent claims, applicant notes that such claims also recite further features not disclosed or taught in the cited art.

With respect to Toyoshima, the Examiner contends that Toyoshima discloses features of the dependent claims 10 and 13-15. However, as it mentioned above, the dependent 9-16 have been canceled without prejudice or disclaimer of the subject matter thereof.

In applying Toyoshima to the independent claim 3, the Examiner contends that Toyoshima discloses a three dimensional micropattern profile measuring system and method in which the wafer (100) is measured on the basis of optical measuring device (i.e., light source 103, detector 101) (FIGS. 1 and 5). However, Toyoshima provides no disclosure or teaching that the light source 103 has at least two measurement members disposed so as to sandwich the light source 103 and to obtain a weighted average of outputs of the at least two measurement members so as to acquire a change in the relative position between the sample 100 and the measurement head 103. Accordingly, applicant submits that the independent and



dependent claims patentably distinguish over Toyoshima and should be considered allowable thereof.

With respect to the independent and dependent claims, applicant notes that such claims also recite further features not disclosed or taught in the cited art.

In view of the above amendments and remarks, applicant submits that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicant's undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 843.45747X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

**ANTONELLI, TERRY, STOUT & KRAUS, LLP**

By /Melvin Kraus/ MK  
Melvin Kraus  
Registration No. 22,466

MK/dks  
1300 North Seventeenth Street, Suite 1800  
Arlington, Virginia 22209  
Telephone: (703) 312-6600  
Facsimile: (703) 312-6666